

OPERATING INSTRUCTIONS

Model IQ120 and IQ125 Professional
pH Meter with Silicon Chip Sensor
(IQ125 additional instructions printed in RED)

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Parts:

1. Probe Tip
pH sensor and reference electrode.
2. pH Sensor
Fast response silicon chip pH sensor with built-in temperature sensor.
3. Reference electrode
Replaceable saturated KCl Ag/AgCl electrode.
4. Reference Junction
Measurement is made when the reference junction and the pH sensor are connected by solution.
5. LCD Display
CAL (blinking): Calibration in process. Measurement cannot be made.
CAL (off): Measurement cannot be made.
BAT: Low batter indicator. Replace batteries.
6. Protective Cap
Always replace the cap after use.
7. Clip
Use the tip of the clip to depress the CAL button
8. Bubble
The reference solution bubble indicates the life of the reference electrode.
9. POWER Button
Press to turn the meter on or off.
10. CAL 1 Button
Button for pH 7.0 calibration.
11. **CAL 2 Button**
Button for pH 4.0 or pH 10.0 calibration.

Calibration and Measurement Instructions:

1. Remove cap from probe tip and turn on the meter.
2. Rinse the probe in tap water and blot dry.
3. Apply one drop of 7.0 buffer to the probe tip. Be sure to cover both the reference junction and the pH sensor.
4. Depress the CAL 1 button with the tip of the clip.
5. The CAL icon will flash until a stable reading is obtained. When the CAL disappears, calibration is complete.
6. Rinse the probe in tap water and blot dry. **To measure the pH of a sample, go to Step 7. To continue with a two point calibration, go to Step 8.**
7. Now measure the sample pH by placing a single drop on the probe tip or dipping the probe into solution.

Continue as follows for two-point calibration:

- **Tip:** When using two-point calibration, always bracket the expected pH value of the sample. For example, if the expected pH of a sample is pH 5.5, use pH 7.0 and pH 4.0 buffer.
8. Apply one drop of either pH 4.0 or pH 10.0 buffer to the probe tip.
 9. Depress the CAL 2 button with the tip of the clip. The meter will automatically identify the buffer value.
 10. The CAL icon will flash until a stable reading is obtained. When the CAL disappears, calibration of the second point is complete.
 11. Rinse the probe in tap water and blot dry. **To measure the pH of a sample, go to Step 12. To continue with a three point calibration, go to Step 13.**
 12. Now measure the sample pH by placing a single drop on the probe tip or dipping the probe into solution.

Continue as follows for three-point calibration:

- **Tip:** Use three-point calibration when the expected sample pH values are completely unknown or range both above and below pH 7.0
13. Apply one drop of the remaining buffer (either pH 4.0 or pH 10.0) to the probe tip.
 14. Depress the CAL 2 button with the tip of the clip. The meter will automatically identify the buffer value.
 15. The CAL icon will flash until a stable reading is obtained. When the CAL disappears, calibration of the third point is complete.
 16. Rinse the probe in tap water and blot dry.
 17. Now measure the sample pH by placing a single drop on the probe tip or dipping the probe into solution.

When finished, always rinse the probe and replace the protective cap.

Notes on calibration and measurement:

Measurements cannot be made while CAL is displayed. Be sure to complete the calibration procedure before taking pH measurements.

Always begin a measuring session with a calibration.

Be sure to use pH 7.0 buffer as a calibration standard. The use of other solutions to calibrate may make measurements inaccurate.

Rinse the sensor with distilled or deionized water when testing the pH of tap water, rainwater, or clean water.

Although the pH meter has automatic temperature compensation, always keep the pH buffers and the samples at the same temperature.

To measure solids such as soil, make a slurry of the sample in deionized or distilled water.

Keep the sensor surface clean. See “Cleaning the Sensor”.

A white powder or gel at the probe tip is KCl reference solution. Clean from sensor before use.

Troubleshooting Guide

ER Error Message:

No pH buffer on the pH sensor.

pH sensor and reference junction are not both covered with solution.

Air bubbles are trapped on the sensor surface.

pH sensor is dirty.

The reference electrode has reached the end of its useful life. Replace reference electrode.

The sensor has been damaged or reached the end of its useful life. Replace meter.

BAT Message Displayed:

Batteries are low. Replace with two 3v CR2032 batteries. See “Replacing Batteries”.

Difficulty in Calibrating or in Obtaining a Stable Reading:

pH sensor is dirty.

The reference electrode has reached the end of its useful life. Replace reference electrode.

Interference from direct sunlight. Shade sensor from sunlight.

pH or temperature of sample is changing.

Sample has low ionic strength (tap water, distilled water).

DO:

Soak the probe in pH 7.0 (neutral) pH buffer for 5 minutes if the probe is new or has not been in regular use.

Clean the probe regularly with soft cotton tipped swab.

STORE THE PROBE DRY with the protective cap covering the probe tip. No electrode storage solution is required.

For maximum accuracy always begin each measuring session with a calibration.

Calibrate at the same temperature as the sample solution. Although the meter has automatic temperature compensation, best results will be achieved if the calibration buffers and sample are the same temperature.

Be sure the surface of the sensor in the probe is free from any deposits or films. See the cleaning instructions in this manual.

Always place the protective cap over the sensor tip when finished measuring.

DO NOT:

DO NOT store the sensor in solution or use for long term pH measuring applications.

DO NOT use below 5 °C or above 40 °C (40 – 105 °F).

DO NOT leave the sensor uncapped for long periods of time.

DO NOT allow oil, fat, food particles, starch, protein, or other materials to remain on the pH sensor after use.

DO NOT use a sharp metal object (needle, pin, etc.) to clean the pH sensor surface.

DO NOT take readings in direct sunlight. Direct sunlight may cause unstable readings or difficulty in calibration.

DO NOT use in an environment that will damage pH sensor or meter: Organic solvents (acetone, toluene, thinner, oils), strong acids (pH 0-2), strong alkalis (pH 12-14), abrasive samples, silicon etching compounds (hydrofluoric acid).

DO NOT press the POWER or CAL buttons with sharp objects.

DO NOT submerge the meter. The meter has water-resistant O-ring seals, it is not submersible.

DO NOT use in environments with static electricity. Electrostatic discharge may permanently damage the probe.

Cleaning the Sensor:

1. Gently clean the sensor with a moistened soft material such as cotton tipped swab.
2. Rinse the sensor with water.
3. Recalibrate.

CAUTIONS:

Do not scratch the pH sensor.

Do not press the reference electrode.

White powder or gel on the pH sensor is KCl reference solution. Clean before using.

Do not clean the sensor with organic solvents such as acetone, methanol, benzene, or thinner.

Replacing the Batteries:

1. Wipe the pH meter dry.
2. Pull the meter case apart as shown to the right.
3. Gently pry out the batteries and replace with two 3v lithium CR2032 batteries. The (+) side of the batteries should face up.
4. Be sure the O-ring is not damaged and is in the correct position.
5. Reassemble the meter.
6. Recalibrate.

CAUTIONS:

Do not open the meter case if the pH meter is wet.

Always replace both batteries at the same time.

Dispose of batteries properly.

Replace the Reference When...

- The contents of the reference have decreased to about half volume as shown to the right.
- Response time slows.
- There is difficulty in obtaining a stable reading.

Replacing the Reference:

1. Wipe the pH meter dry.
2. Pull the reference electrode out of the pH meter as shown to the right.
3. Check to be sure that the watertight O-ring is clean and properly seated on the new reference.
4. Insert the new reference into the pH meter. IQ Scientific Part # RF01-01.
5. Recalibrate the pH meter.

NOTE:

The service life of the reference electrode will vary according to the frequency of measurement, temperature, and other measurement conditions.

CAUTIONS:

Do not remove the reference electrode if the meter is wet.

Be sure that the O-ring seals properly. If the O-ring does not seal properly to the meter, liquid may enter and cause permanent damage.

SPECIFICATIONS miniLab IQ125

Catalog Number	IQ120 and IQ125
Model	miniLab IQ120 and IQ125 Professional
Meter	Pocket-sized waterproof pH meter
Sensor	Silicon chip pH sensor
Calibration	1,2, or 3 Point
Buffer Recognition	Automatic pH 4.0, pH 7.0, pH 10.0
Temp. Compensation	Automatic
Reference	Replaceable KCl gel filled. Part No. RF01-01.
PH Range	pH 2.0 to pH 12.0
Resolution	0.1 pH
Accuracy	±0.1 pH
Operating Temp. Range	5 to 40 °C (40 °F to 105 °F)
Display	LCD digital display (0.1 pH resolution)
Power	Auto Shut Off. Two 3v lithium batteries CR2032
Battery life	150 hours continuous. 10 hour low battery warning
Dimensions	142 x 28 x 15 mm (5.61 x 1.11 x .61) 48 g (1.7 oz.)
Shipping weight	1.0 lbs. (.45 kg)